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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/630,102 | 07/28/2003 | Reiyao Zhu | HT3915 US NA | 8310 |

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| EXAMINER |
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BEFUMO, JENNA LEIGH

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| ART UNIT | PAPER NUMBER |
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1771

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,102

Applicant(s)

ZHU ET AL.

Examiner

Jenna-Leigh Befumo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The Amendment submitted on October 18, 2005, has been entered. Claims 1, 7, and 8, have been amended. Therefore, the pending claims are 1 – 20.
2. The amendment is sufficient to overcome the 35 USC 102 and 35 USC 103 rejections based on Green (4,920,000) since Green fails to teach using one of the fire retardant cellulosic fibers recited in amended claim 1.
3. The amendment is sufficient to overcome the 35 USC 102 rejection based on Fleming et al. (5,468,545) since Fleming et al. fails to teach using one of the fire retardant cellulosic fibers recited in amended claim 1. However, a new rejection based on Fleming et al. is set forth below.
4. The 35 USC 103 rejection based on Edwards (GB 2152542 A) is withdrawn since Edwards doesn't teach that the fire resistant blend has to have aramid and FR rayon, but instead can be made with three out of four selected fire retardant fibers. Thus, one with ordinary skill in the art would need to be motivated to first choose aramid fibers and FR rayon fibers in the blend and then add nylon fibers to that blend.

Double Patenting

5. Claims 1 – 20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 19 of copending Application No. 10/629,299 in view of Edwards (GB 2152542 A). The applicant argues that it would not be obvious to substitute FR modacrylic fibers for the claimed FR viscose fiber. However, Edwards discloses that a fire resistant fiber blend can be made from a blend of various fire resistant fibers including modacrylic and FR viscose depending on the desired properties of

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the finished product. Therefore, one of ordinary skill would be able to appreciate the properties provided each individual fiber and that the various fire retardant fibers can be substituted for one another in the fiber blend depending on the properties desired in the final product. Thus, the rejection is maintained.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1 – 4 and 9 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fleming et al. in view of Cates et al. (5,272,627).

The features of Fleming et al. have been set forth in the previous Office Action. Fleming et al. discloses that a fire retardant cellulose fiber can be used in the fire retardant fiber blend, but Fleming et al. fails to teach using a FR rayon in the blend. Cates et al. is drawn to a fire retardant fabric made from aramid fibers (abstract). Cates et al. discloses that the aramid fibers can be blended with other fibers such as FR cotton, FR rayon, nylon or wool (column 3, lines 60 – 63). Thus, FR cotton is equivalent to FR rayon and can be used instead of FR cotton in aramid fabrics or blends. Therefore, it would have been obvious to one of ordinary skill in the art to substitute the FR rayon as taught by Cates et al. for the FR cotton disclosed by Fleming et al. since the fibers would produce an equivalent product, i.e., a fire resistant blended fabric. Further, it would have been obvious to one having ordinary skill in the art to choose FR rayon instead of FR cotton, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Further, one of ordinary skill in the art would recognize that both the FR cotton and the FR rayon

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are cellulosic fibers which would have similar properties with regards to hand and comfort.

Therefore, claims 1 – 4 and 9 – 14 are rejected.

8. Claims 1 – 6, and 9 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lunsford et al. (6,132,476) in view of Green or Fleming et al.

Lunsford et al. discloses fire retardant fabric blends comprising inherently flame resistant fiber and flame retardant cellulosic fibers (abstract). Lunsford et al. discloses that it is known to blend flame resistant fibers together to create fabrics with the beneficial characteristics of each of the constituent fibers, such as adding rayon to aramid helps produce a softer more moisture absorbent and less expensive material (column 1, lines 40 – 50). The inherently fire resistant fiber is preferably an aramid fiber such as meta-aramid or para-aramid fibers (column 2, lines 55 – 60). And the fire retardant cellulosic fiber is rayon, acetate, triacetate, and lyocell which are treated with one or more flame retardants (column 2, lines 65 – column 3, line 4). The fiber blend has at least 20% NOMEX Fiber and at least 10% FR rayon (column 5, lines 14 – 16). However, Lunsford et al. fail to teach using nylon in the fiber blend.

The features of Green have been set forth previously. Green is drawn to a fire retardant blend comprising 15 – 50% of a flame retardant aramid fiber, at least 30% of a cellulosic component, and 5 – 20% of a nylon fiber. The nylon component is added to the fiber blend to provide soft surface abrasion without a significant loss of softness and drape (column 2, lines 3 – 20).

The features of Fleming et al. have been set forth previously. Fleming is drawn to a fire retardant blend comprising 50 – 95% of a flame retardant cellulose component, 0 – 30% of a thermoset, fire retardant aramid component, and 5 – 30% of a thermoplastic nylon component.

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Fleming teaches that the addition of nylon to a fire retardant blend can increase the wear life of garments made primarily from a cellulosic component and is desirable include them in those fabrics (column 1, lines 17 – 20). The fabric produced is comfortable, flexible, and has an extended wear life (column 1, lines 46 – 48).

Therefore, it would have been obvious to one having ordinary skill in the art to add 5 – 20% of a nylon fiber component as taught by Green or Fleming et al. to the fire-retardant blend disclosed by Lunsford et al. to produce a fire retardant fabric with good wear and heat resistance that is also inexpensive, comfortable and flexible. Further, it would have been obvious to one having ordinary skill in the art to use 5 – 30% by weight of an aramid fiber as disclosed by Green or Fleming et al. in the blend taught by Lunsford et al. so that the finished blend and fabric have sufficient fire resistance as well as having the desired properties due to the FR rayon and nylon. Thus, claims 1 – 6, 9, 10, 15, and 16 are rejected.

Further, Lunsford et al. fails to teach the basis weight of the finished fabric. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a fabric basis weight, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). One of ordinary skill in the art would be motivated to choose a fabric which would be light and comfortable to wear while also producing a fabric which is sufficiently heavy enough to protect the user for fire and related dangers. Therefore, claims 11 – 14 and 17 – 20 are rejected.

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9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lunsford et al. and Green or Fleming et al. as applied to claim 1 above, and further in view of Paren et al. (5,417,752).

The features of Lunsford et al., Green, and Fleming et al. have been set forth above. While Lunsford et al. discloses that additives can be used to make the cellulosic fibers flame retardant, Lunsford et al. fails to teach which additives are used in the fire retardant viscose fibers. Paren et al. is drawn to production of fire retardant viscose fibers. Paren et al. discloses a product containing polysilicic acid in the support structure of viscose cellulose causing the formation of aluminum silicate sites (abstract). Paren et al. discloses that the cellulose fibers containing the aluminum silicate sites had enhanced fire resistance. Thus, it would have been obvious to one having ordinary skill in the art to use the fire retardant viscose fibers disclosed by Paren et al. in the blend disclosed by Edwards since Paren et al. teaches that the viscose fibers have enhanced fire resistance. Thus, claims 7 and 8 are rejected.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

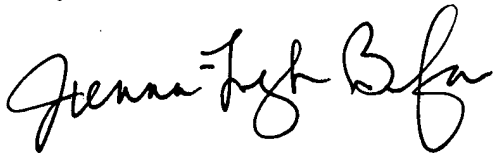
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenna-Leigh Befumo whose telephone number is (571) 272-1472. The examiner can normally be reached on Monday - Friday (8:00 - 5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Jenna-Leigh Befumo". The signature is fluid and cursive, with the first name "Jenna" and last name "Befumo" clearly distinguishable.

Jenna-Leigh Befumo
December 26, 2005